

REMARKS**Summary of the Office Action**

Claims 1-4 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Short et al. (US 4,739,514) in view of Ishikawa (US 4,980,915).

Claims 5-8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Short et al. in view of Ishikawa, and in further view of Dalgleish (GB 2 153 187 A).

Summary of Response to the Office Action

Applicant has amended claims 1-8 to further define the invention. Accordingly, claims 1-8 are pending for consideration.

All Claims Define Allowable Subject Matter

Claims 1-4 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Short et al. in view of Ishikawa (US 4,980,915), and claims 5-8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Short et al. in view of Ishikawa, and in further view of Dalgleish.

Applicant respectfully traverses the rejection for at least the following reasons.

Independent claims 1 and 5, as amended, both recite a deep bass sound booster device, including in part, left-channel and right-channel high-pass filters having to pass only the frequency components higher than a predetermined frequency, left-channel and right-channel bass boosters for amplifying only the frequency components lower than the predetermined frequency and attenuating other frequency components, left-channel switch and right-switch channels having ON and OFF states disposed between the respective channel adder and an output side of the respective channel bass booster, and controlling the signal path depending on the selected preference (loudspeaker or headphone). Applicant respectfully submits that Short et

al., Ishikawa, and Dalgleish, whether taken singly or combined, fail to teach the features recited in amended independent claims 1 and 5.

The Office Action states that “[a]lthough, Short et al. does not teach of a switch placed between the adder and the output of the bass booster, the concept of a switching means placed between an adder at the time of filing was taught by Ishikawa. Thus, the Office Action relies upon Ishikawa to correct the deficiencies of Short et al. by citing that Ishikawa discloses a center model control circuit comprising a switch (34) that determines how the center channel is to be applied or not applied to the left and right speaker (FIG. 1, col. 3, line 45 to col. 4, line 10, ABSTRACT). Applicant respectfully disagrees.

In contrast to the Applicant’s claimed invention, Ishikawa teaches that the center mode control circuit is adapted to be used exclusively in Dolby Surround System (col. 1, lines 5-15, and lines 46-53). As depicted in FIG. 2, the center input signal C includes low-frequency components of the left and right channels, other frequency components, and phase components (col. 1, lines 15-45). Thus, combining the center mode control circuit of Ishikawa with the device of Short et al. will not achieve the features recited in claim 1, since Applicant’s claimed invention processes a low- and a high-frequency components to reproduce sound by the loud speakers and the headphones.

Applicant respectfully submits that Ishikawa teaches in FIG. 3 a center mode control circuit that is adapted to select one of three modes: normal; phantom; and wide. In the normal mode, the center input signal C passes through a low pass filter (LPF 20) and attenuator (ATT 24), and is applied to a first adder circuit 17 of the left channel and outputted to a terminal Lo. Simultaneously, the center input signal C is applied to a second adder circuit 18 of the right channel and outputted to a terminal Ro. The center input signal C is also applied to a terminal

Co through a high pass filter (HPF 21), thereby indicating that a signal outputted to the terminal Co will exclude low-frequency components.

According to Ishikawa, in the phantom mode, the center input signal C is applied to first adder circuit 17 of the left channel through the attenuator (ATT 24) and outputted to the terminal Lo. The center signal C is also applied to the second adder circuit 18 of the right channel and outputted to the terminal Ro. But, no signal is applied to the terminal Co. In the wide mode, a left stereo input signal L is fed to the terminal Lo, a right stereo input signal R is fed to the terminal Ro, and the center input signal C is only fed to the terminal Co.

Applicant respectfully submits that, as described above, the combination of the center mode circuit of Ishikawa with the device of Short et al. does not achieve the features recited in claim 1. For example, processing low- and high-frequency components to reproduce a sound at either the loud speakers or at the headphones.

Furthermore, the Office Action asserts that “Short et al. and Ishikawa each use stereo signals and headphones are two channel. So, although neither teach specifically of the capability of usage with headphones, it is obvious to provide the capability of use with headphones. In incorporating headphone usage, it would have been obvious to have a ‘switching means’.” Thus, the Office Action concludes that “it would have been obvious to modify Short et al. and Ishikawa’s apparatus as stated above for the benefit of having a stereo system that would permit switching between headphones and speakers.” Applicant respectfully disagrees.

Applicant respectfully submits that the feature recited in claim 1, specifically, outputting a suitable sound (i.e., the frequency characteristics) for the loudspeakers and headphones by introducing the headphones and the switches, is neither taught or suggested by Short et al. and/or Ishikawa. Thus, Applicant respectfully asserts that features recited in amended independent claim 1 are not obvious in view of Short et al. and Ishikawa.

Moreover, the Office Action alleges that the concept of a left and right channel, each having a bass booster was well known in the art at the time of filing as taught by Dalgleish. Applicant respectfully disagrees. In contrast to the Applicant's claimed invention, Dalgleish fails to disclose that the left and right channels having bass boosters serving the respective channels. As depicted from FIG. 4, Dalgleish teaches that an input of R.H. channel and an input of L.H. channel cross-connect through a plurality of circuit elements, a low pass filter 10, amplifier 12, and a resistor 14 which are connected in series. In other words, an input signal of the R.H. channel is superimposed with a signal at L.H. output, and an input signal of the L.H. channel is superimposed with a signal at R.H. output, thus causing the crosstalk between the left and the right channels at a low frequency range. Applicant respectfully submits that the functions disclosed by Dalgleish, as described above, are entirely different from function of a circuit having left-channel and right-channel bass boosters, as recited in amended independent claim 5.

As instructed in MPEP §2143.03, "[t]o establish a prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 4980 F.2d 981, 180 USPQ 580 (CCPA 1974)." In light of arguments presented above, Applicant respectfully requests that the rejections of independent claims 1 and 5 under 35 U.S.C. § 103(a) be withdrawn since Short et al., Ishikawa, and Dalgleish, whether taken singly or combined, fail

to teach the features recited in amended independent claims 1 and 5. In addition, Ishikawa and Dalgleish, fail to cure the deficiencies of Short et al. Moreover, Applicant respectfully submits that amended dependent claims 2-4 and 6-8 are allowable for all of the reasons discussed above with regard to amended independent claims 1 and 5, from which they respectfully depend, as well as the individual features each of dependent claims 2-4 and 6-8 recite.

CONCLUSION

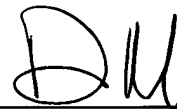
In view of the foregoing remarks, Applicant respectfully requests reconsideration of this application, withdrawal of all rejections, and the timely allowance of all pending claims. Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact Applicant's undersigned representative to expedite prosecution.

If there are any other fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-0310. If a fee is required for an extension of time under 37 C.R.R. § 1.136 not accounted for above, such an extension is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted,

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